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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/180,798 11/16/98 DE VRIES

S S-137-1103/S

022847
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RESEARCH TRIANGLE PARK NC 27709

HM22/0619

EXAMINER

MEHTA, A	ART UNIT	PAPER NUMBER
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1638
DATE MAILED:

06/19/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)
	09/180,798	DE VRIES ET AL.
	Examiner	Art Unit
	Ashwin Mehta	1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 47-82 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 47-82 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) <input type="checkbox"/> Notice of References Cited (PTO-892)	18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
17) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	20) <input type="checkbox"/> Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. The rejection under 35 U.S.C. 101 has been withdrawn in view of Applicant's cancellation of the claims and submission of new, amended claims.
3. The rejection under 35 U.S.C. 112, first paragraph, written description as applied to claims 1-15, 24, 28-44, and 46, has been withdrawn in view of Applicant's cancellation of the claims and submission of new amended claims. Hence, Applicant's arguments on pages 10-11 of the response are deemed moot.

Specification

4. The abstract of the disclosure is objected to because it is not in the form of a single paragraph. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 101

5. Claims 74-78 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The progeny of the plants of claims 74 and 75, the plants of claim 76, that do not comprise the claimed vector are encompassed by the claims, since it is possible that the integrated vector was not passed onto the next generation. These plants would be indistinguishable from those found in nature, and do not constitute patentable subject matter.

See American Wood v. Fiber Disintegrating Co., 90 U.S. 566 (1974), American Fruit Growers v. Brodex Co., 283 U.S. 2 (1931), Funk Brothers Seed Co. v. Kalo Inoculant Co., 33 U.S. 127 (1948), Diamond v. Chakrabarty, 206 USPQ 193 (1980). It is suggested that the claims be amended to indicate that all plants, seeds, and progeny comprise the vector.

Claim Rejections - 35 USC § 112

6. New claims 59 and 60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, for the reasons of record stated in the first office action on page 5 under item 11 for claims 12-15, 25-44, and 45.

Applicants traverse the rejection in the paper filed 30 November 2000. Applicants argue that the newly submitted claims use proper Markush terminology. Applicant's arguments have been fully considered but were not found persuasive. New claims 59 and 60 still use improper Markush terminology. In both claims, in line 5 the semi-colon should be changed to a comma, and in line 6 --or-- should be inserted after the comma.

7. Claims 77 and 78 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation "cultivars which result from said method" in line 2 of the claims renders them indefinite. The recitation makes the claims appear to be directed to a method and a product (cultivars).

8. Claims 77-81 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: concerning claims 77 and 78, the steps between fertilizing plants with the pollen, to obtaining the cultivars. Concerning claims 79 and 80, the steps between subjecting said material to the compound and obtaining the embryogenic cells in plant material. Concerning claim 81, no method steps are recited.

9. New claims 47-82 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for the reasons of record stated in the first office action on pages 8-10 under item 19 for claims 1-23, 25-27, 29-44, and 46.

Applicants traverse the rejection in the paper filed 30 November 2000. Applicants argue the method claim 61 is drawn and limited to a method for producing “seeds of the adventitious embryony type” including transforming with a vector containing the particular DNA sequence claimed in claim 47. Applicants go on to cite sections of the specification as supporting or teaching the relation of the SERK gene with cells that become embryogenic. Applicants argue that new claims 47 and 48 are limited to claiming SEQ ID NOs: 1, 3, 21, 33, 20, and 32 (response, pages 9-10).

Applicants arguments have been fully considered as they apply to new claims 47-48 and claims 49-82 dependent thereon, but were not found persuasive. Claim 47 is not only limited to

the stated SEQ ID NOs, but also encompass any DNA sequence encoding an amino acid sequence which is at least 90% similar to SEQ ID NO: 3, 20, or 33, and which can have any kinase activity, including an activity that is not possessed by SEQ ID NO: 3, 20, or 33. Claim 48 is not only limited to the stated SEQ ID NO but also encompass any DNA sequence complementary to one which hybridizes to SEQ ID NO: 1, 2, 20, or 32 under the stated conditions and which can encode a protein having any kinase activity, including an activity that is not possessed by the amino acids encoded by SEQ ID NOs: 1, 2, 20, or 32. Further, claims 53 and 54 encompass DNA sequences encoding amino acids sequences that are 90% similar to any of the amino acids sequences of claims 47 or 48, and which can encode any activity. Further, other than indicating that SEQ ID NOs: 3, 20 and 33 possess kinase activity, no further information is provided concerning this kinase activity. It is not clear how one skilled in the art would realize that they are in possession of the claimed invention if the amino acid sequence encompassed by the claims cannot be compared to the function of SEQ ID NOs: 3, 20, and 33. Further, the only relation of SERK to cells that become embryogenic that is described by the specification, including those sections of the specification pointed out by Applicants, is that they are present in those cells that become competent to potentially become embryogenic. What SERK is doing in those cells, or to those cells, is unknown. In the absence of a description of the function of SERK, one cannot relate the structure of the claimed DNA sequences to the function of the DNA sequences encoding SEQ ID NO: 3, 20, or 33.

Further, concerning SEQ ID NOs: 20 and 21 – it is not clear that these SEQ ID NOs encode a full length SERK coding sequence and protein. Page 34, lines 18-31 of the specification indicates that SEQ ID NO: 20 was derived from three different clones of a genomic

library of Arabidopsis. Lines 22-23 indicate that fragments spanning the entire coding sequence of the AtSERK gene “are” isolated. The cDNA of AtSERK was also isolated, set forth in SEQ ID NO: 32, the encoded amino acid sequence of which is SEQ ID NO: 33. However, page 15, lines 24 and 25 indicates that SEQ ID NO: 20 is a partial genomic clone. Further, if the AtSERK cDNA of SEQ ID NO: 32 corresponds to its genomic clone, they both should encode the same amino acid sequence. However, SEQ ID NO: 21 is clearly different from SEQ ID NO: 33. It is therefore not clear that SEQ ID NO: 20 is a DNA sequence that encodes a full length SERK protein.

10. New claims 47-82 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, for the reasons of record stated in the first office action on page 13-14 under item 21 for claims 1-46.

The rejection is being maintained for new claims 47-82 because Applicant’s response submitted 30 November 2000 does not specifically address this rejection, and the response on pages 10-11 appear to address written description, not enablement.

11. New claim 63 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the

invention, for the reasons of record stated in the first office action on pages 14-16 under item 22 for claims 6 and 17.

Applicants traverse the rejection in the paper submitted 2 April 2001. Applicants argue claim 63 is dependent on claim 61, which is limited to expression vectors containing the DNA sequences encoding the particular protein sequences of claim 47. Applicants argue that claims 49 and 50 have been amended by deleting the language referring to the absence of a functional ligand binding domain (response, pages 2-3).

Applicant's arguments have been fully considered as they apply to new claim 63 but were not found persuasive. This claim still indicates that the kinase lacks a functional ligand binding domain.

12. No claim is allowed. Claims 47-82 are deemed free of the prior art given the failure of the prior art to teach the nucleotide and amino acid sequences of SEQ ID NOs: 1-3, 20, 21, 32 and 33; DNA sequences encoding amino acid sequences having 90% similarity to SEQ ID NOs: 3, 21, or 33 and having kinase activity; DNA sequences hybridizing to SEQ ID NOs: 1, 2, 20, or 32 at high stringency and encoding a protein having kinase activity; methods of producing seeds of the adventitious embryony type, of obtaining embryogenic cells in plant material, or of generating somatic embryos, comprising transforming plant cells with said DNA sequences.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

CLOSING REMARKS

Any inquiry concerning this communication should be directed to Examiner Ashwin Mehta, whose telephone number is (703) 306-4540. The Examiner can normally be reached Monday-Thursday and alternate Fridays, from 8:00 A.M. - 5:30 P.M. The fax phone number for the group is (703) 305-3014. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Paula Hutzell, can be reached at (703) 308-4310. Any inquiry of a general nature or relating to the status of the application should be directed to THE MATRIX CUSTOMER SERVICE CENTER, whose telephone number is (703) 308-0196.



Ashwin D. Mehta

06/18/01

**AMY J. NELSON, PH.D
PRIMARY EXAMINER**